



THREE-PHASE SYNCHRONOUS GENERATOR 20170101

Datasheet For 50Hz @ 1500rpm / 60Hz @ 1800rpm

EG315-320N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	380	400	415	440	418	440	458	484	506	528
Rated power (kW)	P	304	320	332	352	334	352	366	387	405	422
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.336	0.371	0.408	0.492	0.24	0.254	0.267	0.288	0.31	0.337
Reactance											
Direct axis synchronous reactance	Xd	3.494	3.32	3.2	3.018	4.607	4.382	4.212	3.981	3.812	3.648
Direct axis transient reactance saturated	X'd	0.127	0.121	0.117	0.11	0.168	0.16	0.154	0.145	0.139	0.133
Direct axis subtransient reactance saturated	X''d	0.116	0.11	0.106	0.1	0.152	0.145	0.139	0.132	0.126	0.121
Quadrature axis synchronous reactance	Xq	1.582	1.503	1.449	1.367	2.086	1.984	1.908	1.803	1.726	1.652
Quadrature axis subtransient reactance	X''q	0.175	0.167	0.161	0.152	0.231	0.22	0.211	0.2	0.191	0.183
Negative sequence reactance saturated	X2	0.15	0.14	0.13	0.13	0.19	0.18	0.18	0.17	0.16	0.15
Zero sequence reactance unsaturated	X0	0.007	0.007	0.006	0.006	0.009	0.009	0.009	0.008	0.008	0.007
Time constant											
Open circuit time constant	T'd0	2.309	2.309	2.309	2.309	2.309	2.309	2.309	2.309	2.309	2.309
Short-circuit transient time constant	T'd	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084
Subtransient time constant	T''d	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Armature time constant	Ta	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
No load losses	W	3434	3619	3764	4017	4496	4660	4797	5013	5203	5401
Heat dissipation at full load at Class H	W	20303	20439	20990	22178	23468	23863	24164	24643	25152	25654
Efficiency											
PF=0.8 Efficiency of 25% load	%	92.89	92.86	92.78	92.57	92.28	92.38	92.44	92.51	92.55	92.55
50% load	%	94.55	94.58	94.56	94.46	94.15	94.27	94.35	94.46	94.52	94.56
75% load	%	94.70	94.79	94.81	94.78	94.32	94.49	94.60	94.75	94.85	94.93
100% load	%	93.86	94.00	94.05	94.07	93.43	93.65	93.81	94.01	94.15	94.27
110% load	%	93.37	93.54	93.61	93.65	92.92	93.16	93.34	93.57	93.73	93.87
PF=1 Efficiency of 25% load	%	93.48	93.45	93.39	93.23	92.82	92.91	92.96	93.02	93.06	93.06
50% load	%	95.51	95.54	95.53	95.48	95.09	95.18	95.25	95.32	95.37	95.41
75% load	%	96.07	96.13	96.16	96.17	95.68	95.80	95.88	95.99	96.07	96.13
100% load	%	95.66	95.77	95.83	95.89	95.27	95.42	95.53	95.67	95.78	95.87
110% load	%	95.39	95.52	95.59	95.67	94.98	95.14	95.27	95.43	95.55	95.66
No load excitation current	io(A)	1	1	1	1	1	1	1	1	1	1
Full load excitation current	ic(A)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Full load excitation voltage	uc(V)	40	40	40	40	40	40	40	40	40	40
Short circuit current capacity	%	>300I _N 10s(with PMG)									
Recovery time	Tr	1 s									
Waveform : TIF		<50									
Waveform : THD		<3%									
Waveform : THF		<2%									
Winding pitch		2/3									
Steady state voltage regulation		+/-1%									
A.V.R. model		EVC600/EVC800									
Duty		Continuous									
Number of poles		4									
Class of insulation		H									
Altitude		≤1000m									
Rated power factor		0.8									
Excitation		Brushless									
Stator winding		12ends									
Rotor		With damping cage									
Overload	%	110% rated load for 2 hour per 24 hour									
Stator winding resistance (20°C)	ohm	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072
Rotor winding resistance (20°C)	ohm	0.739	0.739	0.739	0.739	0.739	0.739	0.739	0.739	0.739	0.739
Exciter resistance (20°C)	ohm	9.856	9.856	9.856	9.856	9.856	9.856	9.856	9.856	9.856	9.856
Cooling air requirement	m ³ /min	54.8	54.8	54.8	54.8	65.8	65.8	65.8	65.8	65.8	65.8
Energy storage constant (H)	sec.	0.195	0.185	0.178	0.168	0.255	0.242	0.233	0.220	0.211	0.202
Method of cooling		IC 01									
Ambient temperature		40°C									
Sense of rotation		Clockwise-DE									
Type of construction		Single / Double bearing									
Degree of protection / enclosure		IP21 or IP23									
Maximum overspeed		2250 rpm 2minutes									